REMARKS

Claims 1- 11, 14-15, 24, 26-73 and 75-78 are pending in the application, of which claims 1, 40, 50, 56 and 66 are being amended. Applicant requests entry of the claim amendments which are fully supported by the specification and original claims and add no new matter. Reconsideration of the present case in view of the amendments and remarks herein is earnestly requested.

Allowed Claims

Applicant appreciates the Examiner's indication of allowance of claims 10, 11, 14, 15, 24, 26-30, 33-36, 40-73, and 75-78.

Rejections Under 35 U.S.C 103(a) of Claims 1-6, 8- 9, 31-32 and 74

The Examiner rejected claims 1-2, 6, 9 and 31 under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,137,701 to Mundt in view of U.S. Patent No. 5,468,356 to Uhm. This rejection is traversed.

Claim 74 was canceled in a previous amendment, and thus the rejection of this claim is obviated.

Claim 1 is not obvious over Mundt and Uhm because the references fail to teach or suggest an "exhaust tube adapted to provide a non-circuitous and non-turbulent flow of effluent therethrough by being substantially absent projections or recesses (i) that alter the flow direction of the effluent to provide a circuitous flow of effluent through the exhaust tube, and (ii) that cause turbulence in the flow of the effluent through the exhaust tube" as recited in Clam 1.

The Examiner acknowledged that Mundt fails to teach the exhaust tube because "Mundt does not teach an exhaust tube that is adapted to provide 'a non-circuitous and non-turbulent flow of effluent therethrough' and this exhaust being substantially absent of projections or recesses 'that cause turbulence in the flow of effluent through the exhaust tube'" (Office Action of 12/6/2001.) Thus, claim 1 is patentable over Mundt.

Uhm does not make up for the deficiencies of Mundt because Uhm teaches a chamber having projections, such as metal fragments 25, radioactive material, or a resistive wire, in the gas flow path, as shown in Figure 2 (column 3, lines 23-29.) Uhm fails to teach the claimed exhaust tube that is absent projections in the gas flow path that cause turbulence in the gas flow path. Because the metal fragments, radioactive material, or a resistive wire components taught by Uhm are placed in the gas flow path they cause turbulence in the flow of the gas. Moreover, Uhm teaches that the metal fragments, radioactive material, or resistive wire, are necessary in the gas flow path to "reduce the threshold field for air breakdown" (column 3, line 22.) Thus, Uhm does not suggest that metal fragments, radioactive material, or resistive wire, projections into the gas path are "optionally installed," as suggested by the Examiner (Office Action of 12/6/01.) Thus, Uhm et al fails to teach an absence of the projections or recesses that cause turbulence in the gas flow path, and teaches against such absence by teaching the desirability of providing projections or recesses in the chamber.

Furthermore, even if Uhm is read as teaching that the metal fragments, radioactive material, or resistive wire, are optional in the gas flow path, Uhm still fails to teach the desirability of an absence of an element as claimed. For example, a reference that teaches providing gas A and is silent on the absence of a gas B, is not a teaching to providing gas A in the absence of gas B. Uhm clearly teaches the presence of projections and a silence on the part of Uhm with regard to the absence of projections or recesses is not a teaching to the claimed absence of projections or

recesses. Thus, even according to the Examiner's reading of the reference, which Applicant disputes, Uhm still fails to teach the exhaust tube recited in the claim.

Accordingly, one of ordinary skill in the art would not have found it obvious to combine the teachings of Mundt and Uhm to devise the claimed apparatus. Mundt fails to teach the exhaust tube that provides a non-circuitous and non-turbulent flow of effluent. Uhm fails to teach, and teaches against, an absence of projections or recesses that cause turbulence in the flow of effluent. Thus, claim 1 and the claims depending therefrom are patentable over Mundt in view of Uhm.

The Examiner rejected claims 3-5, 8 and 32 under 35 U.S.C. 103(a) as being unpatentable over Mundt in view of Uhm, and further in view of U.S. Patent No. 4,735,633 to Chiu. This rejection is traversed.

Claim 1, from which claims 3-5, 8 and 32 depend, is not obvious over the combination of Mundt, Uhm and Chiu, because these references fail to teach or suggest the claimed exhaust tube. The deficiencies of Mundt and Uhm have been described above. In short, Mundt fails to teach the exhaust tube that provides a non-circuitous and non-turbulent flow of effluent, and Uhm fails to teach, and teaches against, an absence of projections or recesses that cause turbulence in the flow of effluent. Chiu fails to make up for these deficiencies because Chiu teaches a projection into an exhaust tube that is a spiral electrode. Thus, the combined teachings of the references fail to teach the exhaust tube of the claim1, and claim 1 and the claims depending therefrom are patentable over Mundt in view of Uhm and further in view of Chiu.

CONCLUSION

For the foregoing reasons, allowance of the instant application is respectfully requested. Should the Examiner have any questions regarding the above amendments or remarks, the Examiner is requested to telephone Applicant's representative at the number listed below.

Respectfully submitted,

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MARKED UP CLAIMS FOR S/N 09/055,201

1. (amended six times) A process chamber for processing a substrate in a process gas and reducing emissions of hazardous gas to the environment, the process chamber comprising:

(a) a support capable of supporting the substrate;

(b) a gas distributor capable of introducing process gas into the process chamber;

(c) a gas activator capable of activating the process gas to perform a process in the process chamber thereby forming effluent containing hazardous gas;

(d) an exhaust tube through which the effluent may be flowed, the exhaust tube adapted to provide a non-circuitous and non-turbulent flow of effluent therethrough by being substantially absent projections or recesses (i) that alter the flow direction of the effluent to provide a circuitous flow of effluent through the exhaust tube, [or] and (ii) that cause turbulence in the flow of the effluent through the exhaust tube; and

(e) a microwave energy applicator to couple microwaves to the effluent flowing through the exhaust tube to reduce the hazardous gas content of the effluent.

40. (twice amended) The apparatus of claim 10 wherein the exhaust tube is substantially absent projections or recesses (i) that alter the flow direction of the effluent to provide a circuitous flow of effluent through the exhaust tube, [or] and (ii) that cause turbulence in the flow of the effluent through the exhaust tube.

50. (twice amended) The process chamber of claim 11 wherein the exhaust tube is substantially absent projections or recesses (i) that alter the flow direction of the effluent to provide a circuitous flow of effluent through the exhaust tube, [or] and (ii) that cause turbulence in the flow of the effluent through the exhaust tube.

56. (twice amended) The process chamber of claim 24 wherein the exhaust tube is substantially absent projections or recesses (i) that alter the flow direction of the effluent to provide a circuitous flow of effluent through the exhaust tube, [or] and (ii) that cause turbulence in the flow of the effluent through the exhaust tube.

66. (twice amended) The process chamber of claim 26 wherein the exhaust tube is substantially absent projections or recesses (i) that alter the flow direction of the effluent to provide a circuitous flow of effluent through the exhaust tube, [or] and (ii) that cause turbulence in the flow of the effluent through the exhaust tube.